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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,389	11/03/2003	Shinsuke Miura	2003_1502A	2740

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EXAMINER	
JACKSON, ANDRE K	
ART UNIT	**PAPER NUMBER**
2856	

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/698,389	MIURA, SHINSUKE	
	Examiner	Art Unit	
	André K. Jackson	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-4 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1 and 2 is/are rejected.

7)☒ Claim(s) 3 and 4 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 11/03/03
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1 and 2 are objected to because of the following informalities: It is not clear if the vibration suppressing connection and vibration connection are limitations being claimed or clarification terms. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langdon in view of Miura et al.

Regarding claim 1, Langdon discloses in the patent entitled "Measurement of the density of liquids" a liquid detecting element disposed at a lower end of a vibration shaft and immersed in a measuring liquid, and a vibrating element disposed at an upper end of the vibration shaft and for vibrating the vibration shaft in a circular direction about an axis thereof, where a plurality of piezoelectric vibrating plates, which each

contact a bending vibration, are used as the vibrating element and axially symmetrically arranged in the axial direction with respect to the vibration shaft so that the piezoelectric vibrating plates conduct a bending vibration (Figures 1-3). Langdon does not disclose where the lower vibrating ends on the liquid detecting element side of the piezoelectric vibrating plates are rigidly connected (vibration suppressing connection) to a vibration suppressing member and inner ends of upper vibration ends on the opposite side to the liquid detecting element of the piezoelectric vibrating plates are rigidly collected (vibration connection) to the vibration shaft, an inner end edge of each of the piezoelectric vibrating plates excluding the vibration connection part is held free with respect to the vibration shaft, a bending vibration at the lower vibrating end of each of the piezoelectric vibrating plates is suppressed on the vibration suppression connection part side and a bending vibration at the upper vibrating end is amplified, the amplified bending vibration at each vibrating end is applied to the vibration shaft and the liquid detecting element through the vibration connection part, so that the liquid detecting element is vibrated in the circular direction in the measuring liquid. However, Miura et al. disclose in the patent entitled "Circular direction vibrator" where the lower vibrating ends on the liquid detecting element side of the piezoelectric vibrating plates are rigidly connected (vibration suppressing connection) to a vibration suppressing member and inner ends of upper vibration ends on

the opposite side to the liquid detecting element of the piezoelectric vibrating plates are rigidly collected (vibration connection) to the vibration shaft, an inner end edge of each of the piezoelectric vibrating plates excluding the vibration connection part is held free with respect to the vibration shaft, a bending vibration at the lower vibrating end of each of the piezoelectric vibrating plates is suppressed on the vibration suppression connection part side (Figures 1-3 (5)). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Langdon to include those limitations. By adding this feature the apparatus would be able to establish a certain vibrating frequency vibrating frequency along a certain axis.

Regarding claim 2, Langdon discloses a liquid detecting element disposed at a lower end of a vibration shaft and immersed in a measuring liquid, and a vibrating element disposed at an upper end of the vibration shaft and for vibrating the vibration shaft in a circular direction about an axis thereof, wherein a plurality of piezoelectric vibrating plates, which each contact a bending vibration, are used as the vibrating element and axially symmetrically arranged in the axial direction with respect to the vibration shaft so that the piezoelectric vibrating plates conduct a bending vibration, a cylindrical member serving the vibration axis for connecting the inner end edges of the piezoelectric vibrating plates as an axis thereof is provided, each of the piezoelectric vibrating plates is externally inserted

in an upper end of the vibration shaft at the cylindrical member, and a bending vibration at the upper vibrating end is amplified, the amplified bending vibration at each vibrating end is applied to the vibration shaft and the liquid detecting element through the vibration connection part, so that the liquid detecting element is vibrated in the circular direction in the measuring liquid (Figures 1-3). Langdon does not disclose where the lower vibrating ends on the liquid detecting element side of the piezoelectric vibrating plates are rigidly connected (vibration suppressing connection) to a vibration suppressing member and inner ends of upper vibration ends on the opposite side to the liquid detecting element of the piezoelectric vibrating plates are rigidly connected (vibration connection) to the vibration shaft an inner end edge of each of the piezoelectric vibrating plates excluding the vibration connection part is held free with respect to the vibration shaft, a bending vibration at the lower vibrating end of each of the piezoelectric vibrating plates is suppressed on the vibration suppression connection part side and a bending vibration at the upper vibrating end is amplified, the amplified bending vibration at each vibrating end is applied to the vibration shaft and the liquid detecting element through the vibration connection part, so that the liquid detecting element is vibrated in the circular direction in the measuring liquid. However, Miura et al. disclose lower vibrating ends on the liquid detecting element side of the piezoelectric vibrating plates are rigidly connected

(vibration suppressing connection) to a vibration suppressing member and inner ends of upper vibration ends on the opposite side to the liquid detecting element of the piezoelectric vibrating plates are rigidly connected (vibration connection) to the vibration shaft an inner end edge of each of the piezoelectric vibrating plates excluding the vibration connection part is held free with respect to the vibration shaft, a bending vibration at the lower vibrating end of each of the piezoelectric vibrating plates is suppressed on the vibration suppression connection part side (Figures 1-3 (5)). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Langdon to include those limitations. By adding this feature the apparatus would be able to establish a certain vibrating frequency along a certain axis.

4. Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to André K. Jackson whose telephone number is (571) 272-2196. The examiner can normally be reached on Mon.-Thurs. 7AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-

2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A.J.

March 18, 2005

HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800